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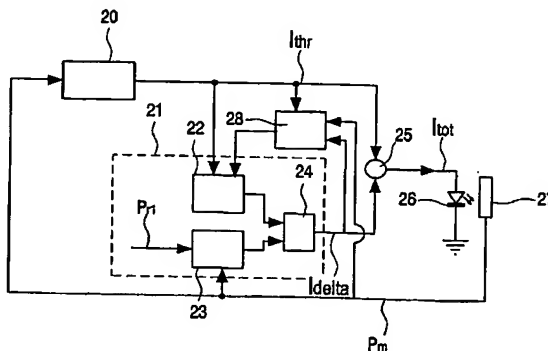
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(54) Title: **METHOD AND RADIATION SOURCE DRIVING DEVICE FOR CONTROLLING RADIATION POWER**



(57) Abstract: The invention pertains to a method for controlling radiation power of a radiation source (26), comprising the steps of a) driving the radiation source (26) in a first mode comprising the substeps of a1) determining a threshold current ( $I_{thr}$ ) at which the radiation source (26) begins to radiate, a2) measuring the radiation power emitted by the radiation source (26) with the threshold current ( $I_{thr}$ ) increased with the a delta current ( $I_{delta}$ ) for obtaining a predetermined radiation power  $P_r$ , wherein the delta current ( $I_{delta}$ ) is calculated by subtracting the measured radiation power ( $P_m$ ) from the predetermined radiation power  $P_r$ , b) driving the radiation source (26) in a second mode comprising the substeps of b1) determining the threshold current ( $I_{thr}$ ), and b2) driving the radiation source (26) with the threshold current ( $I_{thr}$ ) increased with the delta current ( $I_{delta}$ ) for obtaining the predetermined radiation power  $P_r$ , wherein the delta current ( $I_{delta}$ ) is calculated from the threshold current ( $I_{thr}$ ) by using a function  $F$  which is a model for the relation between the threshold current ( $I_{thr}$ ) and the delta current ( $I_{delta}$ ) and the radiation power. The relation between the delta current ( $I_{delta}$ ) and the threshold current ( $I_{thr}$ ) however changes during the lifetime of the radiation source. Therefore the method according to the invention further comprises the step of c) calibrating the function  $F$ , comprising the substeps of c1) determining the radiation power and the delta current ( $I_{delta}$ ) at at least two different threshold currents ( $I_{thr}$ ) when the radiation source (26) is driven in the first mode, and c2) updating at least one parameter of the function  $F$  by using the measurements in substep c1.

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